November 4, 1954

Dr. Ted Puck
Dept. Biophysics
University of Colorado
Denver 7, Colo.

Dear Ted:

I have not had a wide experience of manipulators, and none at all with their application to mammalian cells. We have been using a deFonbrune model (sold by Aloe and Co., St. Louis), and I would say I am fairly satisfied with it, though it tends to leak now and then. If you were going to have several different people work on the machine, and it were to be used routinely, I should think the extra cost of a direct motion translating type like the deF would be justified. Otherwise, I imagine one of the simpler screw-driven types would suffice (Emerson, Chambers). In any event, I hope you try oil chamber technique, and get a microscope suitable for it (long focus condenser, phase contrast). Unless you will need to make elaborate micrurgical instruments for operations on cells, the microforge is not especially useful. Capillaries and needles are best made by hand, or occasionally with the assistance of a hot wire and a dissecting microscope.

If you'd like to see a machine in operation for cell pedigrees, why don't you visit us sometime. I am spending most of my time now isolating conjugal pairs of mating E.coli.

Yours sincerely,

Joshua Lederberg